

The Kid's Times:

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Humpback Whale



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Humpback whales usually dive underwater for 3-5 minutes.

How did the humpback whale get its name?

The humpback whale gets its name from the fact that the dorsal fin sits on a large "hump" on the back, which is noticeable when the whale arches its back and dives. The scientific name, *Megoptera novaeangliae*, means "big wing of New England." The "big wing" refers to the humpbacks' very long flippers, which can be one-third of its body length.

What do they look like?

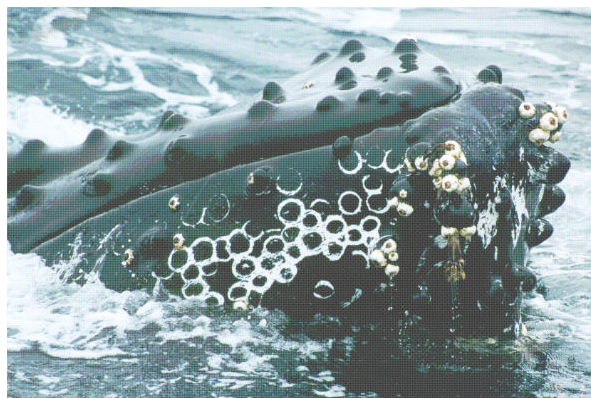
Humpback whales can be easily identified by their markings. They are **rorqual** whales, a set of whales that are all in the family *Balaenopteridae*, have ventral (head to tail) grooves on the throat, and a small, pointed dorsal fin. The grooves allow the throat to expand so they can take in huge amounts of water when they feed. The grooves contract and push out the water, which is filtered through **baleen**. The baleen catches the food inside the whale's mouth. This is an adaptation that developed in a humpback to

help it efficiently eat the tons of food needed for its survival.

The baleen plates in the mouth of a humpback whale are made of fingernail-like material called **keratin** that hangs down in a humpback's mouth. Humpback whales have between 270 and 400 pairs of baleen, and each is approximately 30 inches long. The plates are rough to filter large prey like **krill**.

Humpbacks have an irregularly shaped **dorsal fin** located two-thirds of the way back of the body and very long flippers that are between one-fourth and one-third of the length of the entire body.

Humpbacks have large bumps on the leading edge (front) of the flippers as well as bump-like knobs on the head and lower jaw. Each of the bumps on the head and lower jaw are called "tubercles." They contain stiff hairs, like a cat's whisker, that may help humpbacks regulate



NMFS File Photo

Humpback whales have tubercles on their head and jaw.

temperature or sense things in the water. Many humpback whales are also home to **barnacles** that stick to their skin.

Humpback whales are black on their backs and mottled black and white on their underside. The shape of the dorsal fin and color pattern on the fluke are as individual to each whale as fingerprints are to humans. This allows scientists to use these patterns and shapes to identify each whale visually and to distinguish between individuals.

An adult male humpback whale generally reaches 45-50 feet in length, and the slightly larger females are 52-56 feet long. Adult humpback whales weigh between 25 and 40 tons. Calves are born only 13-15 feet long, weighing up to 1 ton.

Where do they live?

Humpback whales can be found in all the world's oceans. They mostly live in coastal and continental shelf waters, though they sometimes feed around **seamounts** and migrate through deep water. Every year, they follow a regular migration route from warm waters to cold waters and back. Some hump-



A common behavior of a humpback whale is breaching.

back whales make a round trip journey of 10,000 miles! In the summer, humpback whales live in **temperate** waters where they feed. In the winter, they move to tropical waters where they mate and give birth.

How long do they live?

Humpback whales can live to be at least 50 years old.

What do they eat?

A humpback whale's diet consists mainly of krill, small shrimp-like **crustaceans**, and small fish such as herring, sand lance, and capelin. A humpback eats 1-1 ½ tons of food every day! They do not feed in the winter, but live off the fat reserves stored in their blubber.

Humpback whales sometimes work together to catch prey by creating "bubble nets" or "bubble clouds" to trap small fish. The whales dive beneath the water and then swim back toward the surface in a circular pattern. As they rise, they make bubbles that form a ring on the surface of the water. The small fish are caught in inside the ring, and the humpbacks gulp them down. A "bubble cloud" is a large burst of bubbles without open space in the middle.



NMFS File Photo

Humpback whales can form groups to feed.

How do they behave?

Humpback whales often travel and feed individually, but can be found in temporary social groups of up to 4 or 5. Groups may also gather together to feed cooperatively. Humpback whales are slow swimmers compared to other whales. They can reach up to 16 miles per hour (mph), but average only 2-9 mph. Humpback whales usually dive underwater for 3-5 minutes in the summer (sometimes much longer), but on the winter breeding grounds they can dive for 15-20 minutes (rarely to 40 minutes).



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Humpback whales are identifiable by their flukes.

Humpback whales are active and acrobatic. They can throw themselves completely out of the water, during an activity called **breaching**. They also are seen swimming on their backs with both flippers in the air.

Other behaviors that humpback whales perform in the wild are "tail lobbing" and "flipper slapping." When a humpback whale tail lobbs, it raises its huge fluke out of the water and slaps it on the surface. During flipper slapping, they use their flippers to slap the water instead of their tails. No one knows exactly why humpback whales perform

these actions, but it is thought that it may have something to do with communication. The tail lobbs and flipper slaps can be heard for a long distance underwater.

Humpback whales can have young when they are 6-8 years old. A female will normally give birth to one **calf** every 2-3 years during the winter months. Calves remain with their mother and are nursed until they are about one year old.

What sounds do whales make and why?

Humpback whales produce the most diverse **range** of sounds known for any whale and some of the longest and most varied sounds of any animal in the world. Their sounds include a variety of moans, grunts and shrieks produced either by lone individuals or within social groups. Many of these sounds are low in **frequency** (as low as 20 Hz), like those of most other large whales, but some can include parts up to 10,000 Hz (10 kHz). Humpbacks produce sounds in at least three situations. The first are the "songs" that many people may associate with this species, which are thought to be reproductive displays used to help the humpback attract a mate. Lone male humpbacks sing complicated sequences of "themes" that may last 10-20 or more minutes and are repeated for hours on end. Interestingly, the songs change over time and all the males in each population tend to sing slightly different types of the same general song.

These songs have traditionally been thought to be limited to winter breeding areas, though recent research shows that males may sing while traveling or feeding as well. Also, humpbacks on feeding grounds may use sounds to assemble before sudden feeding raids on fish, including the impressive "bubble net" feeding groups of whales feeding on herring in the North Pacific,

and possibly to concentrate prey. Humpbacks in the North Atlantic also use bubble nets, but more commonly bubble clouds; the method is often associated with what scientists believe is coordination among a group, so probably sound is used here too. Finally, on winter breeding grounds, humpbacks in social groups produce different sounds (including those resulting from males physically hitting one another!) that also appear to be related to mating behavior.

If you would like to hear humpback whale sounds, you can visit these two websites:

<http://birds.cornell.edu/BRP/SoundsHBWhale.html>

<http://dkd.net/whales/wsounds.html>

(Section contributed by Dr. Brandon Southall and Logan Southall)



Humpback whales can rise high out of the water when breaching.

NMFS File Photo

Who are their predators?

Killer whales are the main predator of humpback whales. However, sharks will also attack young, sick, or already dead humpback whales.

The activities of humans have also effected

humpback whales. Commercial **whalers** hunted humpbacks into the 20th century, reducing the number of the species to possibly 10 percent of the original population worldwide. Today, the fact that they live so close to the shore still puts them in danger. Humpback whales can be hurt or killed by collisions with boats, pollution, and entanglement in fishing gear.

How many humpback whales are in the ocean?

Today, it is estimated that there are approximately 30,000 humpback whales worldwide. There are approximately 11,600 whales in the North Atlantic, 6,000-8,000 in the North Pacific, and probably at least 17,000 in the entire Southern **hemisphere**.

Why are they in trouble?

The feeding, mating, and calving grounds of humpback whales are close to shore, and they are slow swimmers. This made them an easy target for the early whalers. Between 1905 and 1983, an estimated 200,000 humpbacks were killed in the Southern Hemisphere alone!

What is being done to help them?

Humpback whales are protected by the Endangered Species Act and the Marine Mammal Protection Act, making it illegal to harass or kill a humpback whale in United States' waters. In addition, the International Whale Commission (IWC) gave humpback whales worldwide protection status in 1966. Since then it has been illegal to hunt humpback whales anywhere in the world. Steps are also being taken to try to reduce ship collisions and fishing gear entanglement.

Glossary:

Baleen: Fingernail-like material, made of keratin, that hangs from the upper jaw of a whale's mouth; acts like a sieve to strain out small prey

Barnacles: Marine animals with hard shells that attach to surfaces underwater

Calf: Young whales from newborn to one year

Crustacean: Marine animal with a segmented body, a shell, and jointed legs

Dorsal fin: Fin on the back of a whale

Fluke: End of a whale's tail

Frequency: Number of sound waves within a certain period of time

Hemisphere: Half of the earth; referred to as northern, southern, eastern, or western

Keratin: Fingernail-like material

Krill: Tiny shrimp-like crustaceans

Range: Difference between the highest and lower sound

Rorqual: Whales in the family, *Balaenopteridae*, have head to tail grooves on the throat, and a small, pointed dorsal fin

Seamount: Volcano formed on the ocean floor

Temperate: Not too hot or cold

Whaler: Person who makes their living hunting whales



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Molly Harrison 2005